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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,553	10/14/2003	Cynthia C. Webb	090936.0514	4943
31625	7590	05/09/2005	EXAMINER	
BAKER BOTTS L.L.P.			TRAN, BINH Q	
PATENT DEPARTMENT			ART UNIT	
98 SAN JACINTO BLVD., SUITE 1500			PAPER NUMBER	
AUSTIN, TX 78701-4039			3748	

DATE MAILED: 05/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

S.A

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/685,553	WEBB ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	BINH Q. TRAN	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12, 13 and 15-23 is/are rejected.
- 7) ☒ Claim(s) 11 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) |  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

*Claims 1-9, 10, 13, and 18 are rejected under 35 U.S.C. 102 (b) as being anticipated by Pettit et al. (Pettit) (Patent Number 5,571,484).*

Regarding claims 1, 10, 13, and 18, Pettit discloses an emissions system and method for a diesel engine having an exhaust system with a dual-path exhaust line from the engine (e.g. See col. 1, lines 5-10), the emissions system comprising: a burner head (10) having a tubular outer housing, the outer housing containing: an air bonnet (e.g. 36, 38, 40, 42) at the combustion end of the outer housing, a fuel injector (e.g. 28, 30, 32, 34) operable to provide atomized fuel at the center of the air bonnet, a air assist sleeve surrounding the length of the fuel injector and operable to receive compressed air (e.g. See Figs. 13-17), and a pair of electrodes (48) operable to ignite fuel provided by the fuel injector; wherein the outer housing is open at the combustion

end of the outer housing, the open end suitable for attachment to a port of the exhaust line; a combustion chamber (20) extending from the combustion end of the outer housing and open to a flame provided by the burner head (10), but otherwise enclosed; wherein the combustion chamber extends into the exhaust line (22) such that exhaust from the engine may flow over at least a portion of the outer surface of the combustion chamber; and a NOx adsorber catalyst (14) on each path of the exhaust line, downstream of the combustion chamber (e.g. see col. 5, lines 12-67; col. 6, lines 1-60).

Regarding claim 2, Pettit further discloses that the combustion chamber has a ceramic foam flame stabilizer at the end opposing the combustion end (e.g. See col. 8, lines 25-42).

Regarding claim 3, Pettit further discloses that the fuel injector is a poppet valve type fuel injector (e.g. See Figs. 3-4; col. 6, lines 11-59).

Regarding claim 4, Pettit further discloses that the burner is operable to burn diesel fuel (e.g. see col. 5, lines 12-67; col. 6, lines 1-60).

Regarding claim 5, Pettit further discloses that the air bonnet has openings for delivering air to the flame end of the fuel injector (e.g. see col. 8, lines 43-67; col. 9, lines 1-25).

Regarding claim 6, Pettit further discloses that the outer housing has a main air intake port into the housing and wherein the air assist sleeve has a secondary air intake port (e.g. see col. 8, lines 43-67; col. 9, lines 1-25).

Regarding claim 7, Pettit further discloses that the main air intake port receives at least part of the engine exhaust (e.g. see col. 5, lines 12-67; col. 6, lines 1-60).

Regarding claim 8, Pettit further discloses that the main air intake port receives air obtained externally to the exhaust system (e.g. see col. 5, lines 12-67; col. 6, lines 1-60).

Regarding claim 9, Pettit further discloses that the combustion chamber is submersed in the exhaust line such that exhaust circulates around the combustion chamber (e.g. see col. 5, lines 12-67; col. 6, lines 1-60).

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claims 12, 15-17, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pettit in view of Kinugasa et al. (Kinugasa) (Patent Number 6,032,461).***

Regarding claim 12, and 15-17, Pettit discloses all the claimed limitation as discussed above except that an oxidation catalyst between the burner and the NOx adsorber catalyst, and a particulate filter downstream the NOx adsorber catalysts.

Hirota teaches that it is conventional in the art, to use an oxidation catalyst (810) between the burner (88) and the NOx adsorber catalyst (811); and a particulate filter (814) downstream the NOx adsorber catalysts (See Fig. 8; col. 7, lines 46-67; col. 8, lines 1-36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to position an oxidation catalyst between the burner and the NOx adsorber catalyst, and a particulate filter downstream the NOx adsorber catalysts of Pettit, as taught by Kinugasa for the purpose controlling the temperature of the NOx catalyst within the light-off temperature range,

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and to reduce amount of nitrogen oxides in the exhaust gas of the lean-burn engine, and further improve the performance of the engine and the efficiency of the emission device.

Regarding claim 20, Kinugasa further discloses the step of controlling the air-to-fuel ratio of the burner (See Fig. 8; col. 7, lines 46-67; col. 8, lines 1-67; col. 9, lines 1-14).

Regarding claim 21, Kinugasa further discloses that the controlling step is performed by providing a rich air-to-fuel ratio during regeneration of the NAC (See Fig. 8; col. 7, lines 46-67; col. 8, lines 1-67; col. 9, lines 1-14).

Regarding claim 22, Kinugasa further discloses the step of particulate filter, and further comprising the step of increasing the temperature output of the burner to a temperature suitable for regeneration of the particulate filter (See Fig. 8; col. 7, lines 46-67; col. 8, lines 1-67; col. 9, lines 1-14).

Regarding claim 23, Kinugasa further discloses the step of a fuel injector surrounded by a sleeve, and further comprising the step of providing compressed air into the sleeve (See Fig. 8; col. 7, lines 46-67; col. 8, lines 1-67; col. 9, lines 1-14).

***Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pettit in view of design choice.***

Regarding claim 19, Pettit discloses all the claimed limitation as discussed above except the catalyst temperature is in the range of 250-375°C.

Regarding the specific range of the catalyst temperature, it is the examiner's position that the range of 250-375°C of the catalyst temperature would have been an obvious matter of design choice well within the level of ordinary skill in the art, depending on variables such as mass

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flow rate of the exhaust gas, as well as the concentration of oxygen in the exhaust gas, properties of materials for making the NO<sub>x</sub> storage catalyst, and the controlled temperature of the catalytic converter. Moreover, there is nothing in the record which establishes that the claimed parameters present a novel or unexpected result (See *In re Kuhle*, 562 F. 2d 553, 188 USPQ 7 (CCPA 1975)).

Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art. *In re Dreyfus*, 22 CCPA (Patents) 830, 73 F.2d 931, 24 USPQ 52; *In re Waite et al.*, 35 CCPA (Patents) 1117, 168 F.2d 104, 77 USPQ 586. Such ranges are termed "critical" ranges, and the applicant has the burden of proving such criticality. *In re Swenson et al.*, 30 CCPA (Patents) 809, 132 F.2d 1020, 56 USPQ 372; *In re Scherl*, 33 CCPA (Patents) 1193, 156 F.2d 72, 70 USPQ 204. However, even though applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art. *In re Sola*, 22 CCPA (Patents) 1313, 77 F.2d 627, 25 USPQ 433; *In re Normann et al.*, 32 CCPA (Patents) 1248, 150 F.2d 627, 66 USPQ 308; *In re Irmischer*, 32 CCPA (Patents) 1259, 150 F.2d 705, 66 USPQ 314. More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Swain et al.*, 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; *Minnesota Mining and Mfg. Co. v. Coe*, 69 App. D.C. 217, 99 F.2d 986, 38 USPQ 213; *Allen et al. v. Coe*, 77 App. D.C. 324, 135 F.2d 11, 57 USPQ 136.

***Allowable Subject Matter***

Claims 11 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Since allowable subject matter has been indicated, applicant is encouraged to submit formal drawings in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

***Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents:

Achleitner et al. (Pat. No. 5617720), Webb (Pat. No. 5771683), Clifton (Pat. No. 5829248), Sakurai (Pat. No. 4571938), and Blaschke et al. (Pat. No. 5826428) all disclose an exhaust gas purification for use with an internal combustion engine.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865.

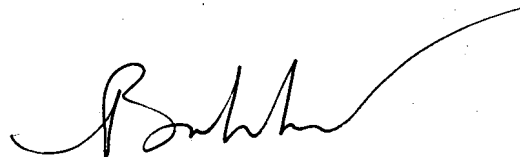
The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT

May 01, 2005



Binh Q. Tran  
Patent Examiner  
Art Unit 3748